Aware is published by NOAA's National Weather Service to enhance communications within the Agency and with the emergency management community.

Aware

Volume 1, January 2009

Climate, Water, Weather

Jack Hayes Leads NWS Participation at the IAEM Annual Conference

Talk can convey intentions, but it's our actions that actually prove them. Since day one, NWS Director Jack Hayes and NWS Deputy Director Vickie Nadolski have shown a strong commitment to the NWS partnership with the emergency management (EM) community. The most recent example is Jack's participation at the International Association of Emergency Managers' (IAEM) annual conference in Overland Park, KS, in November.

Jack, IAEM President Russ Decker, and other EM officials again led a popular 2 hour open forum. NWS Central Region Deputy Director John Ogren facilitated the discussion. NWS accepted several action items and will report its progress at the 2009 IAEM conferences. Below are some key issues brought up by IAEM members to the NWS.

- Implement HazCollect as soon as possible.
- Create a document outlining the NWS strategic direction for data interoperability standards.
- Provide state EM agencies access to lightning data.
- Eliminate the term "100 year flood" and "500 year flood" in hydrologic products.
- Provide finer spatial resolution (1-5km) flood/flash flood modeling, and have those models feed directly into inundation map products. This change will help EMs make decisions 6-12 hours before an event.
- Continue to use "certain death" call-to-action statements in extreme situations such as Hurricane Ike's imminent landfall in 2008. The rare use of this type of extreme wording should be coordinated with local and state emergency management.
- Use the phrase *"local emergency managers are monitoring the situation,"* where appropriate, in NWS call-to-action statements in watch and warning text products.
- Improve ability to express forecast uncertainty. IAEM members requested that NWS continue to focus on innovative means to convey "forecaster confidence without a false sense of precision" and to include EMs in the development and training processes.
- Strengthen the StormReady® program. StormReady® has been tremendous in strengthening the NWS-EM partnership. To continue to grow, StormReady needs to be provided with resources to fund the program.

Inside Aware

NWS staff gave several presentations at the conference:

- Jack Hayes addressed the IAEM membership in a plenary session. His message highlighted recent NWS accomplishments and several future NWS initiatives pertinent to our emergency management partners.
- Dave Tucek, Warning Coordination Meteorologist (WCM), NWS Indianapolis, IN, presented *"Special Events Weather Safety Support—The Indy 500 Race."*
- Dan Noah, WCM, NWS Tampa Bay, FL, provided insights with *"National Weather Service: New Age of Collaboration and Enhanced Communication."*

From left, NWS Southern Region Director Bill Proenza, NWS Western Region Director Bob Tibi and NWS Central Region Director Lynn Maximuk.

While Dave's talk focused on weather safety concerns for EM officials at large event venues such as sports arenas, Dan's spotlighted some of the innovative services and communication methods being used by NWS to support our working relationship with emergency management.

NWS always maintains a booth at the IAEM annual conference. Andy Bailey, WCM, Kansas City, MO, led this year's effort at the booth.

This annual conference marked the first time that several of the NWS regional directors were heavily involved. Three of our six regional directors were on hand to interact with IAEM.

As outgoing IAEM President Larry Gispert said, "We can't do our job without them [NWS], and they can't do their job without us [Emergency Management]."

NWS looks forward to continuing to strengthen that partnership in the new year.

For more information, contact Chris Maier, National Warning Coordination Meteorologist. ❄

Dissemination News

Aware

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Outreach to NWS Partners: Training on the Dual-Polarization Radar Upgrade to the WSR-88D

Starting in 2010, the entire fleet of Weather Surveillance Radar—1988 Doppler (WSR-88Ds) is scheduled to undergo a major software and hardware upgrade to enhance its data collection capabilities. This upgrade, known as dual-polarization, or dual-pol, will allow each radar to collect data with information about the horizontal and vertical properties of weather (e.g., rain, hail) and non-weather (e.g., insect, ground clutter) targets.

Currently, WSR-88Ds receive data only on the horizontal properties. Dual-pol data are comprised of several new products and algorithms that will be available to NWS forecasters, their partners and the general public. The network upgrade will be done in stages and take approximately 3 years. Each radar will be down for 10-14 days while it is upgraded.

As part of this system upgrade, the NWS Warning Decision Training Branch (WDTB) is developing outreach for delivery by WCMs and online training for emergency managers, TV, radio and other private sector forecasters. The training will help NWS partners effectively incorporate these new data into their decision making. This initiative will likely include:

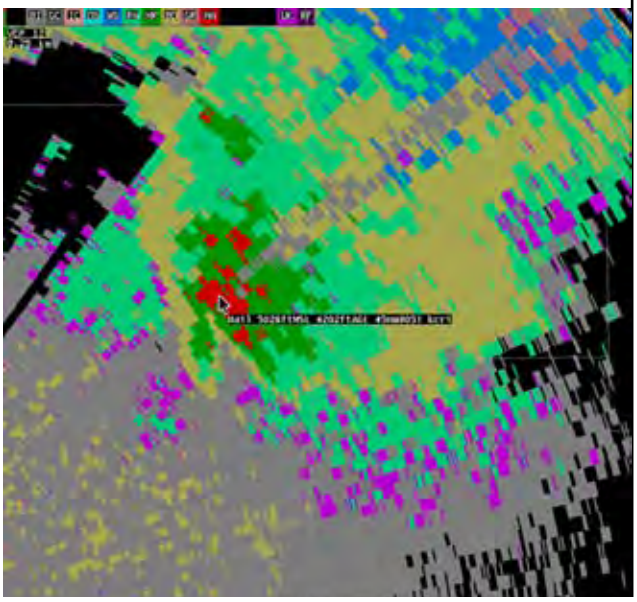
- Materials such as PowerPoint presentations and graphics to support local WCMs in their outreach efforts
- Background information and training available online to help non-meteorologists better understand the basic scientific concepts relevant to dual-pol data interpretation

- Online training on the new WSR-88D dual-pol radar data and how non-meteorologists are most likely to make use of the data
- Instructions for non-NWS meteorologists on how to best apply the online training modules from the WSR-88D dual-pol training course

To help identify specific training needs of EMs, media and private sector partners, affiliates with the University of Oklahoma's Cooperative Institute for Mesoscale Meteorological Studies (CIMMS) are gathering information from representatives in these communities on how they think dual-pol data may impact them.

This initiative is to be delivered in coordination with the WSR-88D dual-pol upgrade schedule. While these dates are subject to change based on future developments, the current schedule for delivery of these training and outreach materials is in Fall 2010.

If you are interested in taking part in this effort, regardless of your current understanding of dual-pol radar, please contact **Andrew.C.Wood@noaa.gov**. ❄

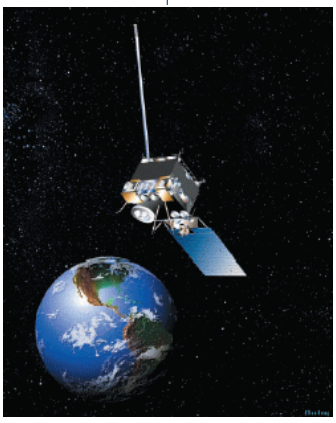


Example of the Hydrometeor Classification Algorithm product that will be available after the WSR-88D dual-polarization upgrade.

EMWIN Future Improvements on Display

The Emergency Managers Weather Information Network (EMWIN) team assisted with a demonstration of the EMWIN/Low-Rate Information Transmission (LRIT) Geostationary Satellite (GOES)-R prototype at the 2008 Satellite Direct Readout Conference, December 8-12. The conference focused on current GOES and Polar Orbiting Satellite data access and distribution, as well as preparing users for the upcoming changes to NOAA satellite programs.

The demonstration was a combined effort by the EMWIN team; Aerospace Corporation; National Aeronautics and Space Administration; National Environmental Satellite, Data and Information Service; and the GOES-R Program office. The demonstration offered a glimpse at the future of EMWIN, which includes a greatly expanded data rate, making it possible for a much increased product set. In addition, the prototype receiver is being developed using an open source, software-defined radio solution to help keep down costs.



Also on display were the versatile backward compatibility options of the prototype receiver, which makes it possible for one receiver to receive and decode broadcasts from EMWIN-N and LRIT using the GOES-13 (N) satellite and also receive and decode the current EMWIN and LRIT broadcasts from GOES-East (12) or West (11).

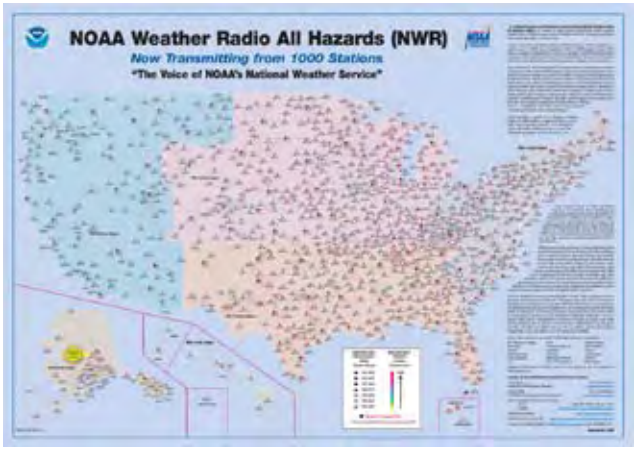
EMWIN-N Update

GOES-13 (N) has been broadcasting the EMWIN-N data stream since early August. During this time, the staff has continued to be pleased by the results of the software-defined radio demodulator and an off-the-shelf transition ready EMWIN-N system now being marketed by one of the EMWIN vendors. Based on the remaining fuel of the GOES-East (12) satellite, GOES-13 can be expected to be in operation no later than 2010. GOES-13 could be called into service earlier in the event of a major failure of either GOES-East (12) or GOES-West (11). Users should consider migrating to EMWIN-N capable systems.

To keep informed of new developments in the EMWIN transition, please visit the NWS EMWIN Website at: **www.weather.gov/emwin/index.htm**.

For more information, contact **Robert.Wagner@noaa.gov**, EMWIN program staff. ❄

New NOAA Weather Radio Poster and Brochure



New NOAA Weather Radio All Hazards Poster.

The NOAA Weather Radio All-Hazards (NWR) staff has released an updated poster and brochure on NWR. In addition to basic information about what NWR is and the various options available, the booklet, released last fall, includes a list of all 1,000 operational sites as of September 2008. Users are encouraged to check the Website if they need more detailed information. For easy printing, the 4-page brochure and all graphics are in black and white.

The color poster depicts NWR coverage throughout the United States. To download either product, go to **www.weather.gov/nwr/geninfo.htm.**

Limited printed copies of the brochure and the poster may be available from your local NWS office or you can email **NOAA-Outreach@noaa.gov**. ❄

NOAA and USDA Bring 1,000th NOAA Weather Radio All-Hazards Transmitter to Nenana, Alaska

Federal, state and local government officials gathered in Fairbanks, AK, on December 12 to celebrate installation of the 1000th NWR transmitter in the nearby town of Nenana.

This transmitter provides Nenana area residents, visitors, barge captains, railroad operators and others with much needed access to hazard information, including life-saving watches and warnings.

Before this installation, people in Nenana had to call the forecast office in Fairbanks directly to receive information, or rely on the local grapevine for news about hazardous conditions.

From left, Nenana, AK, Mayor Jason Mayrand accepts the check to fund the NWR transmitter from USDA Acting Alaska Director Chad Padgett. Looking on is NWS Alaska Region Director Dr. Frank Kelley and State of Alaska Division of Homeland Security and Emergency Management Deputy Director Mike O'Hare. Photo by Randy Davis, Electronic Systems Analyst, NWS Fairbanks.

Positioned on the Tanana River, Nenana is an essential marine highway used to transport supplies to residents in portions of remote Alaska. For years, Nenana residents would hear that the nearby town of Salcha was flooding and wonder if they needed to take flood precautions.

Nenana is also on the Alaska Railroad, used both by tourists and commercial interests. The railroad serves as a backup means for transporting goods not normally shipped on the Parks Highway and is also used to ship items too large to transport by truck.

This installation was made possible through a partnership between NOAA, the U.S. Department of Agriculture and the city of Nenana. USDA Rural Development provided $39,438

to the City of Nenana for this project. Matching funds and contributions came from the Nenana city government. Since 2001, USDA Rural Development has awarded 97 Weather Radio Transmitter grants for installations in 27 states and Puerto Rico.

There are 51 NWR transmitters in Alaska. This system is essential in Alaska for broadcasting warnings of volcanic eruptions, tsunamis, floods, winter weather and dangerous seas. The 300-watt transmitter will help to fill a huge gap in the system's coverage area. The nearest transmitter south of Nenana is over 250 highway miles away in Wasilla. The nearest transmitter to the north beyond Fairbanks is 500 air miles away in Barrow.

For more information, contact **Audrey.Rubel@noaa.gov**, NWS Alaska Region Headquarters Anchorage, AK. ❄

Fire Weather

U.S./Australia Share Fire Weather Resources

NWS continues to work with the Australia Bureau of Meteorology (BoM) to enhance fire fighting efforts here and "down under." Seven NWS Incident Meteorologists will be traveling to forecast offices in Adelaide, Hobart, Sydney and Melbourne Australia to lend support to fire weather control agencies in Australia, and to their state EM services this winter through summer 2009 in Australia. What began in 2006 as a request from the Australia BoM for purely fire weather operational support, has since expanded to include occasional briefings to emergency managers involved with local response and infrastructure protection.

Most recently, NWS Fire Weather Expert Heath Hockenberry returned from a stint in Melbourne. Melbourne is the first Australian city to implement the NWS Graphical Forecast Editor for all forecast operations.

As a result of lessons learned, this is the first summer season in which three public protection agencies for Victoria are being housed in one facility. The Australian Department of Sustainability and Environment, Country Fire Authority and State Emergency Services are all working at one physical location this year.

The U.S./Australian partnership notched several successes already as the Australian fire season kicks off. In November, fire problems quickly turned into flood, flash flood and wind concerns due to an abnormally strong late spring storm across southern Australia. Hockenberry was able to provide briefings and forecasts in coordination with the Victoria BoM forecast office, directly to all levels of emergency management, from Victorian power authorities to local ambulance crew leaders. The fire weather exchange has not only achieved excellent fire-related service, but has also allowed for tailored, critical briefings benefitting Australians beyond just the threat of fire.

Our international exchange has infused new ideas into operational forecast techniques and also increased emergency responder weather awareness and safety. Our emergency management briefs allow for proper pre-positioning of resources and raise media awareness of the event to inform the public of the event's possible impacts.

For more information, contact **Heath.Hockenberry@noaa.gov** ❄

NWS Strengthens Hydrology Outreach with New Service Coordination Hydrologists Slots in River Forecast Centers

In 2007, NWS, in conjunction with its Employees Organization, created a new position in its 13 River Forecast Centers: Service Coordination Hydrologist (SCH). Comparable to the role NWS WCMs play in our Weather Forecast Offices, the SCHs are now leading NWS Hydrologic education, outreach and customer service on a local level. The SCHs are also assisting their Hydrologist-in-Charge in interactions with collaborating partners, primarily state and federal water agencies.

NWS Outreach Frontline: Warning Coordination Meteorologists and Service Coordination Hydrologists share information at a joint training program in December.

The NWS Headquarters Hydrologic Services and WCM programs have been working hard to ensure our SCHs are integrated strategically in our organization. An example is the recently completed WCM/SCH course that took place at the NWS Training Center in Kansas City. All nine of the new SCHs were on hand to work alongside their WCM peers. Scott Tessmer, Jerry Griffin and Dave Cokely of the NWSTC updated the course curriculum to ensure a meaningful synthesis of the SCHs.

The NWS spirit of cooperation and partnership was demonstrated in an impromptu holiday charity effort when attendees at the conference gathered to help area residents who needed food.

"The Homewood Suites Kansas City Airport would like to express our gratitude to the (WCM-SCH class participants) for their contributions to the Homewood Suites' food drive. Every year we put a box in the lobby so Hotel associates and guests may contribute canned goods and other food staples to the Platte County Assistance Center. On Monday afternoon December 8th, the [WCM-SCH class participants] combined their resources towards this effort. Not satisfied just to raise over $100.00, several of them went to the local Wal-Mart and did all the shopping. And, they did all of this on a night when the weather was less then cooperative. When I arrived at the Hotel on Tuesday morning, one area of my office floor was filled with bags of groceries for the food drive. It would not come close to fitting in the boxes in the lobby. Unbelievable! I have to say, I was a bit overwhelmed. Never in my 16 years of hotel work have I had a group of guests take a hotel initiative to heart like the (WCM-SCH class participants) did. Their thoughtfulness is very much appreciated and will benefit those in need."

The strength of NWS is our people. Best wishes in the New Year. For more information, contact Chris.Maier@noaa.gov, NWS National Warning Coordination Meteorologist. ❄

High Water Sign Project Goes Nationwide

Following the success of the 2006-2008 high water sign pilot project, the program is expanding nationally, supported by AHPS funding. Interested offices should contact their regional headquarters for more information.

Severe flooding is part of the history of many communities in the southeast United States; still, many residents are not fully aware of the flood potential in their area. To help raise awareness of flood risk, the Southeast River Forecast Center began a project in 2006 to install high water mark signs. The signs are usually placed in busy locations that have suffered severe flooding, such as the wall of a building downtown. This placement gets more notice than a sign near the riverbank.

Service hydrologists at local NWS offices coordinate with emergency managers and other local officials to select the best locations for the signs. The U.S. Geological Survey is involved as well, providing historical data and aiding with the surveying of high water marks in their districts. So far, nine signs have been installed from Wadley, AL, to Franklin, VA. The signs commemorate historic flooding from tropical systems, such as Hurricane Floyd in 1999, as well as non-tropical rain events.

High water mark sign in Rome, GA. From left: NWS Staff members John Feldt, Jack Bushong, Todd Hamill, Barry Gooden, Kent Frantz, and Tom Wallace.

People who have lived through a severe flood will not soon forget its effects, but the signs will raise awareness of the dangers of flooding for new residents and future generations. For more information, contact **Christine.Mcgehee@noaa.gov**, Hydrologist, Southeast River Forecast Center.

National Flood Safety Awareness Week: March 16-20, 2009

Flooding will occur in 2009. The question is, where? The goal of Flood Safety Awareness Week is to remind the public how often floods occur, how powerful they can be, that no location is immune to flooding and what we can do to save lives and property.

Last year, portions of the nation's central and southern plains experienced severe flooding for several months during the spring and summer. Additionally, the remnants of Hurricane Ike dropped heavy rain and cut a path from the Gulf Coast to Chicago last fall. Throughout the year, other regional floods and local flash floods were reported from coast to coast.

In addition to the events below, local NWS Forecast Offices may offer additional programs specific to the area you live in. There are many new resources on the NWS Flood Safety Website. Be sure to check it out the various flood awareness days:

- **Monday: Advanced Hydrologic Prediction Service (AHPS)**: AHPS provides improved river and flood forecasts and water information across America to protect life and property and ensure the nation's economic well-being.
- **Tuesday: Turn Around Don't Drown (TADD):** TADD is an NWS campaign to warn people of the hazards associated with walking or driving a vehicle through flood waters.
- **Wednesday: Floods, Droughts and other related Phenomena:** A myriad of hydrologic phenomena occurs across the United States each year ranging from ice to water. This section of our site is a portal to detailed scientific services and safety information related to these hydrometeorological occurrences.
- **Thursday: Flood Insurance:** Find out how you can get flood insurance, rate your risk, estimate your premiums, find an agent and more. This information can be found by going to the Federal Emergency Management Agency's National Flood Insurance Program at **www.FloodSmart.gov.**

- **Friday: Flood Safety:** A day focused on educating people on how they can find out if they are in danger of a flood, how severe the flood will be and what they can do to ensure they are prepared.

To access information about the flood awareness days, go to **www.weather.gov/floodsafety/.** For more information, contact **Larry.Wenzel@noaa.gov**, NWS National Hydrologic Outreach Program Leader. ❄

NWS Partners to Address Flash Flood Risk in Missouri and Kansas

NWS Springfield Office, in coordination with the Southwest Missouri Council of Governments, hosted the Flash Flood Risk Analysis Project Partnership Symposium at Missouri State University, December 8. More than 60 participants representing federal, state and local organizations, private businesses, members of the public, education and research institutions, and the media took part. Goals of the symposium were to foster open communication, to foster joint partnerships through sharing of information and resources, and to develop and incorporate mitigation and safety preparedness strategies regarding flooding in Southwest Missouri and Southeast Kansas.

Dave O'Connor, Maintenance Engineer, Missouri Department of Transportation, discusses flood mitigation techniques used by the Missouri Department of Transportation.

In 2008, flooding claimed five lives in the Ozarks and resulted in hundreds of vehicle rescues. More than 270 reports of flash flooding were reported in 2008 due to heavy rainfall in the steep terrain of the Ozark Plateau. The year was exceptionally wet. The year ranked as the 4th wettest on record in Joplin, MO, which measured more than 50 inches of precipitation, greater than 12 inches above the normal annual precipitation.

Internationally recognized flooding expert Dr. Eve Gruntfest, University of Oklahoma, and Dr. Isabelle Ruin, National Center for Atmospheric Research, presented research on societal response and decision making during flooding events.

"The fostering of partnerships with these diverse stakeholders, integrated with social science along with meteorological research and forecast information will lead to more effective applications of flood information and response," says Kelsey Angle, meteorologist. The purpose of the Flash Flood Risk Analysis Project is threefold:

- Incorporate detailed physiographic, socio-economic and historical flood data that will lead to more detailed and accurate flash flood warnings, thus leading to more effective response by those in harm's way.
- Equip the EM community, in coordination with NWS warning preparedness activities, to perform more effective flood risk assessment and mitigation prior to flooding and response efforts during and after a flash flood.
- Provide the public and other agencies with more effective flash flood warnings, investigate development of flood sensors, and develop safety campaigns for the protection of life and property.

For more information, contact NWS Springfield, MO, Meteorologist **Kelsey.Angle@noaa.gov** or WCM **Steve Runnels@noaa.gov.** ❄

Girl Scouts Earn Badges at NWS HQ

Troops of Junior Girl Scouts took part in the premiere NOAA-sponsored Girl Scout Badge Day at NWS Headquarters in Silver Spring on October 17. The 59 Girl Scouts were from Maryland and Washington, D.C.

The Weather Watcher Badge Program, which ran from 8:00 am – 3:30 pm, was designed to fulfill the requirements of the Junior Girl Scout Weather Watcher Badge. Attendees visited four educational workshops, met a local broadcast meteorologist and played educational games. In addition, the girls met many former Girl Scouts who are currently NOAA employees working as meteorologists, hydrologists and engineers.

Laura Furgione, Assistant Administrator of the NOAA Office of Program Planning and Implementation, gave a welcoming address to the Girl Scouts. In addition to her formal remarks, Furgione gave the girls a brief introduction to weather. Furgione, also a former Girl Scout, told the girls about her educational background and her early experiences working as a NOAA scientist in Alaska.

Laura Furgione, Assistant Administrator of the NOAA Office of Program Planning and Implementation, poses with 59 Junior Girl Scouts who came to NWS headquarters to earn their Weather Watch Badge.

NWS sponsored the first Boy Scout of America Weather Merit Badge last June. The Junior Girl Scout Weather Watcher Badge has several distinct differences. First, Boy Scouts are typically at least 12 years old. Junior Girl Scouts are generally between 9-11 years old and have therefore had less exposure to natural sciences at school. The Boy Scout merit badge focuses on weather safety. The Girl Scout Junior Weather Watcher Badge focuses on predicting the weather and potential weather careers. There is currently no senior level weather badge offered by the Girl Scouts.

"I know my girls had a great time at the NWS Weather Watcher Badge Day," said Scout mother Jill Ye. "The girls sang the entire van ride home."

Workshops included lessons on cloud identification, building weather observing tools, weather maps and weather health and safety. Additional Scout badge workshops are being discussed.

"The popularity of these Scout programs and the length of the waiting list for to attend them shows the huge demand for courses of this type directed towards the scouting community," said NWS Program Analyst Deborah Lavine, "The NWS staff members who put this course together worked hard to develop a program that would benefit the Scouts and be easy to replicate throughout NOAA." Lavine hopes that some of the 122 weather forecast offices will choose to produce their own Scout days, as community outreach and education efforts. A template for a Scout day will be available soon.

For more information, contact NWS Program Analyst **Deborah.Lavine@noaa.gov**. ❄

Texas Creates School Safety Center to Better Protect Children

NWS Corpus Christi Booth
Texas School Administrators Safety Conference

As part of a new outreach effort aimed at K-12 students, NWS Corpus Christi, TX, Forecaster Katie Roussy and WCM John Metz took part in the Texas School Administrators Safety Conference in Corpus Christi last November. The event, organized by the Texas School Safety Center (TxSSC), attracted several hundred school administrators from across Texas and adjoining states.

What is the TxSSC? Created in 1999 and authorized by the Texas Legislature in 2001, the TxSSC serves as a central location for school safety information and provides schools with information such as research, training and technical assistance to reduce youth violence and promote school safety. TxSSC is part of the Center for Safe Communities and Schools in the Texas State University Department of Criminal Justice.

NWS staff set up a booth at the safety conference, distributed folders of NWS safety brochures, WFO Fort Worth's new school safety DVD entitled "Preparing for the Storm," and accompanying booklets. Roy Sedwick, from the Lower Colorado River Authority, generously provided 100 copies of the DVD and booklets to hand out.

The NWS booth highlighted photos from schools across the nation impacted by severe storms, tornadoes and flash floods. Participants were drawn to the booth to view the mobile tornado chamber. Live Web access allowed staff to show NWS real-time products on a 26" LCD screen.

TxSSC staff has expressed a real interest in partnering with NWS to push the message of severe weather safety to Texas schools. Several WCMs from across the state plan to visit TxSSC in January to collaborate on the best ways to reach out to students and staff. For more information, contact **John.Metz@noaa.gov**. ❄

New Weather Safety Tear Sheets Available in English, Spanish, French and Vietnamese

The American Red Cross has developed "tear sheets" for hurricane safety and flood safety paper that outline what to do before, during and after these emergencies.

These tear sheets also are available electronically in Spanish, Vietnamese and French. They were distributed during disaster relief operations for Hurricanes Gustav and Ike. Eventually these tear sheets will be in tablet form for distribution in neighborhoods, at stores and for posting in local communities. The Red Cross site includes handouts in numerous languages. Other topic areas under development include:

- Residential Fires
- Wildland Fires
- Winter Storms/Extreme Cold
- Earthquakes
- Landslides
- Tornadoes
- Thunderstorms
- Heat Waves
- Bioterrorism
- Bombings
- Pan Flu/Seasonal Flu

Download the flyers at **www.redcross.org/services/disaster/0,1082,0_504_,00.html**. For more information, contact NWS Program Analyst **Donna.Franklin@noaa.gov**. ❄

Recent Milestones in the Service Assessment Program

The NWS Service Assessment Program was busy in 2008. Four assessments were activated during the year:

- Pacific Northwest Storms of December 1-3, 2007
- Super Tuesday Tornado Outbreak of February 5-6, 2008
- Mother's Day Weekend Tornado in Oklahoma and Missouri May 10, 2008
- Midwest Floods of June 2008.

Photo looks north over Interstate 5 near Chehalis, WA, shortly after the storms of December 1-3, 2007. Permission to use image courtesy of the Washington State Department of Transportation (WSDOT). Photo taken by Jeremy King, WSDOT.

The final report for the Pacific Northwest assessment was released on October 14. From December 1 through December 3, 2007, three potent storm systems moved onshore along the Washington and Oregon coasts. These storms brought snow, hurricane force winds, coastal flooding, heavy rain and avalanches. Heavy rain and rapidly melting snow produced severe flooding. Five river forecast points broke all-time record flood levels. The flooding and avalanches caused 11 fatalities. The report, along with other service assessment reports, can be viewed at: **www.weather.gov/os/assessments/index.shtml**.

The final draft for the Super Tuesday Tornado Outbreak report is being reviewed by NWS management. The Performance Branch expects the report to be released to the public this winter. During a 12-hour period in the evening and early morning of February 5-6, 2008, 87 tornadoes struck in nine states with 57 fatalities. This is the second largest February tornado outbreak since 1950 (beginning year of official tornado database) in terms of fatalities, and the largest since May 31, 1985.

On December 16, 2008, the team leader for the Mother's Day Weekend Tornado assessment briefed the NWS Corporate Board and other important attendees on the findings and recommendations of the team. The final report will likely be released this spring.

On May 10, 2008, an EF4 tornado moved southeast from the town of Picher, OK, into southwest Missouri; causing 21 fatalities despite moving through sparsely populated areas.

Record flooding across the Midwest during June 2008 sparked another assessment team. The team has completed its initial draft and the team lead will likely brief the Corporate Board and other important attendees on its findings and recommendations in late January 2009. Disastrous flooding occurred in Iowa, Missouri, Illinois, Wisconsin and Indiana during that time. Preliminary estimates indicate the flooding was responsible for $5 billion in damage and more than 20 fatalities.

NWS forms a service assessment team to evaluate its performance during significant weather events such as hurricanes, tornado outbreaks, flooding, wildfires and severe winter storms. The findings and recommendations from these assessments improve the quality of NWS

products and services, and enhance the ability to increase public education and awareness regarding issues associated with hazardous weather. The ultimate goal is to help NWS better meet its mission of protecting lives and property and enhancing the national economy.

For more information, contact **Wayne.Presnell@noaa.gov**, Meteorologist, Performance Branch, NWS Headquarters. ❄

The Weather Ranger, Episode II – Two Kids and a Ditch

How do you get kids—and adults—to listen to safety information? Send in a super hero! Each year, Southeast River Forecast Center Hydrologist Rick Ullom and Senior Hydrologist Todd Hamill develop a new episode of the NOAA Weather Ranger. This year's adventure is entitled Two Kids and a Ditch. The cartoon provides flood safety information specific to flash floods.

This episode is based on a true event that happened a few years ago in Peachtree City, GA, where a child was swept into a flooded stream and drowned. Each NOAA Weather Ranger episode includes a video, poster, bookmark and coloring book. Take a look at the Episode II - Two Kids and a Ditch Video.

The video is a great product to use with school groups, office tours and even spotter talks. Visit the **NOAA Weather Ranger** Website for other promotional materials. For more information, contact **Rick.Ullom@noaa.gov**.❄

Large Turnout for Next Generation Warning Services Workshop

The Next Generation Warning Services Workshop held in December sparked lively discussions in four major areas at the plenary sessions, the smaller breakout groups and in the hallways on several of the workshops stated goals:

- Optimize threat information services
- Explore new and emerging technologies
- Collect creative ideas to improve future watch, warning and advisory services
- Infuse social science expertise into the watch, warning and advisory services

The presentations on the first day of the workshop focused on establishing where we are with warning services from three perspectives; NWS, partners and social scientists. Attendees also looked at geospatial issues and emerging technologies that will impact warning services.

Key partner presentations were provided by speakers such as Dr. Chuck Doswell, University of Oklahoma; John Porter, Accuweather; and Lisa Vitols, Environment Canada. During the Social Science Perspective, Dr. Eve Gruntfest noted that there were more social scientists in the audience than she had seen at previous workshops or meetings of this kind.

From the evaluations, the highest rated sessions were the smaller

discussion groups of 20 to 25 attendees. These facilitated discussions attempted to answer selected questions developed from attendee input prior to the workshop. These same small groups were then reconvened to develop a presentation that was delivered to the entire workshop.

The workshop was held with support of NWS management and the College of Atmospheric and Geographic Sciences at the University of Oklahoma in Norman, OK. A total of 135 people attended including NWS experts and representatives from private weather enterprises, broadcast media, academia, emergency management and several other government agencies.

Most of the workshop presentations are available at: **http://www.weather.gov/warningworkshop**. Please send comments on the draft of the workshop "Outcomes" to **John.T.Ferree@noaa.gov** and **Elliott.Jacks@noaa.gov**. ❄

Innovative Twist Helps WFO Sacramento on SKYWARN™ Day

The annual SKYWARN™ Recognition Day (SRD) has always been a tough event for NWS Sacramento office to take part in. SRD is held the first Saturday of December every year, the same weekend as the California International Marathon, run annually in the Sacramento metro area. Most of the active amateur radio operators in the area are committed to assisting in the marathon. As a result, SRD is often run only by the licensed operators on the NWS Sacramento staff.

At the same time, the office wants to honor and celebrate the role of the amateur radio operator (Hams) in severe weather operations. The Hams provide additional trained eyes and ears in the field to relay storm information back to the weather office for use in forecasts and warnings.

During SRD, Hams across the country try to contact as many weather offices as they can via the amateur radio bands. Most weather offices host local operators at their site to help with the contact load.

This year, NWS Sacramento was able to put a new twist on the program by working with two of its partner groups to make a training day out of the event. The Sacramento County Sheriff's Amateur Radio Program (SHARP) and the Sacramento County Metro Fire Department Amateur Radio Team (ART) send most of their experienced members out to the marathon course, but the event is too hectic for the most inexperienced members.

Sheriff's Amateur Radio Program (SHARP) and Amateur Radio Team members with NWS SKYWARN™ Recognition Day Coordinator stand beside the SHARP mobile unit. Photo by NWS Meteorologist Eric Kurth.

This time around they teamed with NWS Sacramento to run the SRD event as a mini training ground for these newest members. The members were able to practice their procedures to set up a command post, learn how to outfit the mobile units and rig the radios and antennas to the power generators and to use new skills as radio operators.

In addition to training the new operators, this provided an opportunity for both SHARP and ART to bring prospective new members to a working site that was not in the midst of an actual county emergency event. Meanwhile, NWS gained a team to assist with the 24-hour operation of the SRD and found a new way to strengthen relationships between NWS and these important partners.

For more information, contact NWS Sacramento WCM Kathy Hoxsie at **Kathryn.Hoxsie@noaa.gov**. ❄

New SKYWARN™ Publications Coming Soon

The NWS outreach team will soon replace the Basic and Advanced Spotters Guides with revised materials. These new materials will include the following:

- Pocket guide
- Unabridged online version of the pocket guide
- Brochure offering basic information about the NWS SKYWARN™ program

The revised spotter training materials are being developed by the SKYWARN™ Modernization Team, made up of field representatives from each NWS region. This balanced approach was taken to ensure that the modernized guide contains information that will help spotters understand severe weather most commonly observed in their specific location. The pocket guide, scheduled to be printed this summer, will contain chapters on the following:

- The Spotter and the Spotter's Role
- Thunderstorm Basics
- Tornado Lifecycle
- New Technology

For more information, contact **John.Simensky@noaa.gov**. ❄

StormReady/TsunamiReady

Exceptional Student Helps NWS Gain First StormReady® Supporter High School

Hoggard High School, Wilmington, NC, becomes a StormReady Supporter with help from a special student. From left: Principal David Spencer, New Hanover County EM Director Warren Lee, Hoggard Senior Nick Younghaus, and NWS Wilmington WCM Steve Pfaff.

The teachers and students of John T. Hoggard High School in Wilmington, NC, are part of the first high school in the country to prepare an action plan and practice drills making them ready for a tornado or other severe weather. This preparation has earned them a designation as a **National Weather Service StormReady® Supporter**.

To achieve this status, the school has developed severe weather safety plans, actively promotes severe weather safety through awareness activities and conducts regular safety training.

"Hoggard High School can be proud of this accomplishment and for paving the way for other high schools to take part in the StormReady® Supporter program," said NWS Wilmington WCM Steve Pfaff. "Hoggard's students and faculty will be better prepared in the event of severe weather."

This achievement is largely the result of Nicholas Younghaus, a Hoggard High School senior who interned at NWS Wilmington forecast office. Younghaus, who is autistic, spearheaded the school's efforts to become a StormReady® Supporter through his desire to become a meteorologist and his belief in the importance of weather safety.

"When you have autism, you can be labeled by others and not given the opportunity to make a contribution. This shows what autistic students can do if they are given the chance," said Younghaus.

Younghaus is now promoting the principles and guidelines of the StormReady® program to other area schools, making New Hanover County schools an example for the rest of the country on severe weather safety and awareness in our school systems.

"It is important for schools to become StormReady® Supporters since the program provides for a greater sense of awareness and a roadmap for creating a safer environment for our children," said Warren Lee, Emergency Management Director of New Hanover County.

For more information about StormReady, contact your local **Warning Coordination Meteorologist**. ❄

Winter Weather

Updated Winter Weather Training Track Offered for EMs and NWS Staff

To support training and preparedness activities for all hazards associated with winter weather, the NWS Warning Decision Training Branch (WDTB) recently announced an updated version of the 2008-2009 Advanced Warning Operations Course (AWOC) Winter Weather Track. Several updates were made to the AWOC Winter Weather Track this year based on new NWS Winter Weather Simplification Warning policies, user feedback and new information on societal impacts due to winter weather. The AWOC Winter Weather Track is targeted to NWS staff responsible for issuing winter weather watches and warnings.

A highlight of WDTB's Winter Weather AWOC is a new module on *User Needs to Mitigate Societal Impacts: Road Weather*. This module provides an overview of how weather impacts the nation's roadways, what surface transportation personnel do to mitigate those impacts, and how forecasters can work more closely with the transportation community to better meet the NWS mission to protect life and property. The course also describes the role of private sector weather providers and their ability to provide more comprehensive and customized consulting services to the transportation community. EMs and others outside NWS can access the course via the **WDTB Website**. NOAA employees who want certification should access the course through the NWS Learning Center.

For information on WDTB's Winter Weather AWOC, please see the following Website: **http://www.wdtb.noaa.gov/courses/winterawoc/index.html**.

For more information, contact **Bradford.N.Grant@noaa.gov**, WDTB. ❄

Green Bay Packs in Attendees at Winter Weather Workshops

Deep snow in Green Bay. Photo by Peg Zenko.

NWS Green Bay recently hosted two winter weather workshops for county highway department personnel. The workshops were developed as a result of a meeting in February 2008 between NWS WCM Jeff Last, Senior Forecaster Teri Egger, and staff from the Brown County Highway Department.

All attendees received a detailed look at winter weather road operations and learned how the highway department uses weather information in its operations.

With the earlier meeting in mind, attendees developed the workshops for this winter, which were held on November 19 and December 11, 2008. The seminars included a discussion of NWS operations, severe winter weather procedures and services, receipt of weather information, and a detailed tour of the NWS Website.

In addition, both workshops included excellent discussions on high impact, sub-advisory (HISA) events. Forecast staff members were also in attendance. As a result of the initial meeting and workshops, NWS Green Bay staff has a better appreciation for the needs of our transportation partners before, during and after winter storms and HISA events.

For more information, contact NWS Green Bay, WI, WCM Jeff.Last@noaa.gov. ❄

Online Winter and Spring Awareness Resources

Winter and Spring are snow, ice, severe weather and flood seasons. NWS offers numerous resources to help communities, schools and individuals better prepare for emergencies. Check out the following sites for posters, videos, animations, photos, survivor stories, kid and teacher resources, policy statements and much more.

- **Flood Safety:** www.floodsafety.noaa.gov/index.shtml
- **Winter Weather Awareness:** weather.gov/os/winter/index.shtml
- **Lightning Safety:** www.lightningsafety.noaa.gov/index.htm
- **Severe Weather:** www.weather.gov/os/severeweather/index.shtml ❄

Climate, Water and Weather Links

Aviation Weather:	**aviationweather.noaa.gov/**
Brochures, Booklets, Posters:	**weather.gov/os/brochures.shtml**
Education and Outreach:	**www.weather.gov/os/edures.shtml**
MIC, WCM, SOO, DOH List:	**weather.gov/os/wcm-soo.pdf**
Natural Hazards Statistics:	**weather.gov/os/hazstats.shtml**
NOAA home page:	**www.noaa.gov**
NOAA Weather Radio Information:	**weather.gov/nwr/**
Past Weather and Climate:	**lwf.ncdc.noaa.gov/oa/ncdc.html**
TsunamiReady:	**www.tsunamiready.noaa.gov**
Weather Fatality, Injury Statistics	**www.weather.gov/os/hazstats.shtml**